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Cromemco

Data Base Management System

Instruction Manual

Cromemco™

DATA BASE MANAGEMENT SYSTEM

INSTRUCTION MANUAL

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INTRODUCTION

One of the most wide spread applications of computers is for storing, sorting, sifting, and retrieving information from a data base. In industry the data base may take the form of mailing lists, personnel records, inventory and purchasing records, customer lists, accounts receivable entries, or a general ledger chart of accounts. In the professions important data bases may include patient histories, client information, journal references, or student records. In personal use the data base may consist of a Christmas card mailing list, birth dates of relatives, or stamp or coin collection information. In all these instances quick access to specific information in the data base can be very important.

A data base is a collection of related information stored together to serve one or more applications. This data is independent of any programs which use the data. Different users who perceive the data in different ways can use it to serve different purposes. Data base usage is cost, time, and space efficient. The cost of storing, changing, and utilizing the data is less than most other methods. The time it takes to add, delete, or change records is much less than other methods. All of the information is right at your fingertips. The information that would have filled a room full of file cabinets may now be put on diskettes which will all fit in a desk drawer.

The Cromemco Data Base Management System (DBMS) is unique in that it is both an easy to use and yet efficient system for storing and retrieving information from your Cromemco computer system. Technically speaking, the Cromemco DBMS uses a multi-keyed indexed sequential access method for organizing the data base. This means that precisely the information you need can be extracted from the data base quickly and conveniently.

For example, consider the case of company personnel records stored on a Cromemco computer system. The DBMS allows you to quickly obtain any of the following information:

1. an alphabetical listing of employees with their phone numbers,
2. a list of employees hired after a particular date,
3. a list of minority employees,
4. the name of an employee with a particular license plate,
5. a list of employees by date of hire, or
6. a list of employees in a particular department.

In addition to storing, sorting, and retrieving data in a myriad of ways, the Cromemco DBMS has the provision for printing mailing labels if there is a Cromemco printer connected to your system.

There are three new terms with which you must be familiar when working with the Cromemco DBMS. These are **data file, record,** and **field.** Using personnel records as an example, the entire set of information about all employees is called the data file. All information about any specific employee is called a record. Each element of a record (e.g., date of hire) is called a field. These terms are illustrated on the following page.

		Field	Name	Arthur Aardvark
			Street	2300 El Camino Real
			City, State	Palo Alto, CA
	Record		Phone	###-####
			License No.	######
			Starting Date (yymmdd)	780117
			Department No.	741
			Minority (y/n)	y
			Name	Barry Bingham
			Street	4700 Elm
Data File			City, State	Mountain View, CA
			Phone	###-####
			License No.	######
			Starting Date (yymmdd)	720715
			Department No.	796
			Minority (y/n)	n
			.	
			.	
			Name	Zila Zongfield
			Street	2745 Deadwood
			City, State	Los Altos, CA
			Phone	###-####
			License No.	######
			Starting Date (yymmdd)	780509
			Department No.	796
			Minority (y/n)	n

Data Base Reporter

Generation of custom reports that will convey information in a clear and concise fashion is extremely useful. This can be done after you have created the structure of your data base and have entered data. There are several different ways that this may be accomplished. One way is by writing programs that will retrieve selected data from the data file and then sort and format this information. This process is fairly difficult, needs a person with well developed programming skills, and is time consuming. There is a simpler way; the Cromemco Data Base Reporter (DBR) brings custom report generation within the grasp of nonprogrammers.

The Data Base Reporter will take selected information from your data file and format it to your specification. The master file and sort files are not used. Features of DBR include:

Data can be displayed in a form suitable to your needs.

Calculations can be performed on the numeric data of the records in your file and the results displayed.

Portions of data fields can be displayed. It is not necessary to display entire data fields.

Data can be grouped and sorted according to your specifications.

Calculations can be performed on grouped data. This could be in the form of subtotals or specific calculations for a group of data.

DBR output can be sent to a file where it can be viewed without printing it.

Fields can be added or changed in a current data base. This may be done by creating a new data file with DBR while not changing the original data file.

Getting Started

Before creating a data base you must accomplish several tasks. To begin with, turn on the computer and insert the DBMS diskette in drive A. Boot-up the computer by pressing the RETURN key several times until a ; appears on the screen, type **b** and press RETURN again. This will load the operating system and the batch file, **STARTUP.CMD**, that will load the DBMS. The following will be displayed:

```
CDOS version ##.##
Cromemco Disk Operating System
Copyright (c) Cromemco, Inc.

A.@ Startup
@ (Batch) version ##.##

A.run dbms

Cromemco Data Base Management System version ##.##
Copyright (c) Cromemco, Inc.

Function      Operation
--------      ---------
   1          Define a new data base
   2          Display the data base structure
   3          Enter information into the data base
   4          Create and block sort files
   5          Display, change, and delete records
   6          Retrieve information from the data base
   7          Modify the master file
   8          Select a different master file
   9          Print mailing labels
  dir         Display contents of a disk
  end         Exit DBMS and return to CDOS

Function desired:
```

In addition to the nine numbered functions, **dir** and **end** can be entered in response to the **Function desired** prompt. **dir** will allow the user to display the file names, space used, and space remaining on any drive in the computer system. If a drive is specified that is not in the system, the contents of the current drive will be displayed. **end** will terminate the current DBMS session and the system will return to CDOS.

All data and responses can be entered in upper-case or lower-case characters.

Values which appear in brackets ([]), after certain prompts to the user, are the values which will be entered if the RETURN key is pressed without first entering a value.

You can run DBMS with the DBMS diskette(s) inserted in any of your drives. If you have a hard disk in your system, the DBMS files can be kept there. However, the STARTUP file will only work from Drive A.

As a general rule, if you want to stop what you are doing in DBMS, type **end** at a prompt.

Using a Printer

If there is a Cromemco 3355A printer in your system, the 3355A printer driver must be loaded prior to the running of DBMS for the printing to be done correctly. No modifications need to be made to the system if a Cromemco dot matrix printer is used.

DBMS Backup

Under the terms of the Cromemco licensing agreement, you are permitted to make backup copies for your own use and this should be done as soon as possible. The disk(s) supplied with this package is write-protected and is intended for use as a master copy. Backup may be accomplished by performing the following steps:

1. Once DBMS is loaded from drive A and has prompted you with the message:

   ```
   Function desired:
   ```

   you should type **end** and press RETURN.

2. After a short pause for exiting from the program, you should receive the CDOS prompt: A.

3. Now insert a blank disk (8") in Drive B (see step 3A if you are using 5" diskettes) and type the following commands to create a backup disk:

```
WRTSYS B:=A:
XFER/V B:=A:*.*
```

Wait for all transfers to finish. Be sure that after each transfer, XFER prints the message: Compared OK. If the file does not compare properly, transfer it again.

4. Note that the following files are not required for normal DBMS operation and therefore may be erased from the duplicate disk if you wish to allow more space for data base files. However, **please do not erase these from the master disk.**

   ```
   CDOSGEN.COM
   STAT.COM
   WRTSYS.COM
   XFER.COM
   ```

   These files may be erased by commands of the form: ERA STAT.COM.

5. Now remove the master disk from Drive A and store it in a secure, warm, and dry location as your permanent backup. Remove the disk from Drive B, write-protect it, replace it in Drive A, boot up, and you will now be running the Cromemco Data Base Management System.

The above procedure is essentially the same for small (5") disks. However, step 3 above is done in the following manner:

3A. Check that master disks A and B are inserted in their respective drives (they should be already if you have performed steps 1 and 2 above). The two disks to be used for backups will require initializing. Type: B:INIT <CR> to call the Initialize program. Now **remove** master Disk B and **replace** it with a blank disk in Drive B **before answering any of the questions printed by INIT.** Once the blank disk is in the drive, **be sure** to answer the questions correctly. When one of the blank disks has been initialized, then replace it with the second and initialize that also. Now that this is complete, type the following commands to create backup disk A:

```
WRTSYS B:=A:
XFER/V B:=A:*.*
```

You now must also create a backup disk B. Be sure to place master disk B in Drive A before proceeding. Now continue by again installing the second initialized blank disk (from above) in Drive B, **pressing CNTRL-C on the console,** and then typing the following commands:

```
WRTSYS B:=A:
XFER/V B:=A:*.*
```

Finally, remove master disk B from Drive A and replace it with backup disk A, place backup disk B in Drive B, boot up the system, and you will be running the Cromemco Data Base Management System.

Chapter 1

CREATING THE STRUCTURE OF A DATA BASE

Of the nine Cromemco DBMS functions, the first is used to create the structure of a new data base.

With the aid of the DBMS Definition Worksheets (see Appendix 3) and the examples in this chapter, you will need to design the structure of your data base. You must decide on the names of the master file and the data file, what data fields are needed, their length and whether data will be displayed left or right justified, in what orders you wish to sort the data, and the names of the sort files.

Having filled out the Data Base Definition Worksheets you are now ready to use function 1 to create a data base. Type the number **1** in response to the DBMS prompt **Function desired** in order to use this function. DBMS will prompt you to specify on which disk drive the master file resides. You respond by typing a letter corresponding to the appropriate disk drive. **Note** that there must be a diskette inserted into the drive that you specify and the diskette must **not** be write protected. For an 8" diskette with a write-protect notch, writing is enabled by covering this notch with a piece of opaque tape. For a 5" disk just the opposite holds. Writing on a 5" diskette is enabled by removing the opaque tape covering the write-enable notch on the diskette jacket.

After selecting the disk drive for the master file you must make up a name for the file using a maximum of 8 characters. The computer will automatically append the extension **MST** to the file name that you provide.

You will then be prompted to enter the description of each data field followed by a comma, the type of field (alphabetic or numeric), and the field width. The length of field descriptions can be up to 26 characters. If the field is designated as alphabetic, it will be left justified when displayed. If the field is designated as numeric, it will be right justified when displayed. Type **end** after you have completed providing this information.

Next, you will be prompted for how you would like the data to be sorted. You may have as many sorts as you have fields up to a maximum of 20 sorts. For each sort enter the field numbers in descending order of sorting significance, i.e., most important will be first and the least important, last. Each sort may include as many fields as can be included within a total field length of 123 characters.

Finally, the system will prompt you for names for the disk files that hold the actual data and the sort keys. The system will automatically append the extension **DAT** to the name you enter for the data file. The name of the data file can contain a disk drive specifier different from that of the master file. The extension **SRT** will be appended to the sort file names.

You have now finished laying the ground work for your data base system. The computer will now display the function selection list so that you can select the next operation.

Example - Creating a Data Base Structure

```
Cromemco Data Base Management System version ##.##
Copyright (C) Cromemco, Inc.

Function        Operation
--------        ---------
   1            Define a new data base
   2            Display the data base structure
   3            Enter information into the data base
   4            Create and block sort files
   5            Display, change, and delete records
   6            Retrieve information from the data base
   7            Modify the master file
   8            Select a different master file
   9            Print mailing labels
  dir           Display contents of a disk
  end           Exit DBMS and return to CDOS

Function desired: 1

**********       blank screen       **********

Disk drive on which to create the master file:  a

Enter the new master file name:  mailist
```

```
Cromemco Data Base Management System
      Create Structure


Define the fields that will be in the data file.  They
should consist of the field name, followed by a comma, a
type (A or N), and the field length.

Field #1? name,a24
Field #2? address line 1,a24
Field #3? address line 2,a1
Field #4? city,a20
Field #5? state,a2
Field #6? zip code,n5
Field #7? country,a1
Field #8? end

Record length is 77

To create sorts, enter field numbers in descending order
of sorting significance.  Separate the field numbers by
commas.

Sort #1? 5,4,1
Sort length is 46

Sort #2? end

Enter the data file name: [MAILIST.DAT] <CR>

Enter the name of sort file 1? [MAILIS1.SRT] <CR>

Specifications complete

***********      blank screen       *************

*********** return to function menu *************
```

This sort of 5, 4, and 1 would cause the records to be grouped by state in alphabetical order. Within each state group, the records would be grouped by city in alphabetical order. And within each city group, the records would be ordered by name alphabetically.

Chapter 2

DISPLAYING THE STRUCTURE OF A DATA BASE

Selecting Function 2 lets you examine the structure of a data base as specified in a master file. The system will prompt you for the name of the master file that you want to examine. You do not need to include the extension **MST** when specifying this file, as this will automatically be appended by the system.

After the system specifications have been displayed, you can return to the function selection list by pressing RETURN.

Examples - Display Data Base Structure

```
Function desired: 2

**********      blank screen       **********

Specifications for Data Base -- A:MAILIST.MST
        Data File -- MAILIST.DAT

Field #    Description                 Type
-------    -----------                 ----
  1        NAME                         A24
  2        ADDRESS LINE 1               A24
  3        ADDRESS LINE 2               A1
  4        CITY                         A20
  5        STATE                        A2
  6        ZIP CODE                     N5
  7        COUNTRY                      A1

Sort #      Fields                     File Name
------      ------                     ---------
  1         STATE by CITY by NAME      MAILIS1.SRT

Press RETURN to display the function menu <CR>

***********      blank screen       **********

*********** return to the function menu ***********
```

Cromemco Data Base Management System
Display Structure

Here is an example of a system layout for an inventory system:

```
Specifications for Data Base -- A:INVEN.MST
        Data File -- INVEN.DAT

Field #     Description                  Type
-------     -----------                  ----
  1         PART NUMBER                   A9
  2         DESCRIPTION                   A25
  3         UNIT COST                     N8
  4         SELLING PRICE                 N8
  5         QUANTITY ON HAND              N6
  6         QUANTITY ON ORDER             N6
  7         REORDER POINT                 N6
  8         REORDER QUANTITY              N6
  9         PRIMARY VENDOR                A15
  10        SECOND SOURCE VENDOR          A15
  11        QTY USED CURRENT PERIOD       N6
  12        QTY USED YEAR-TO-DATE         N6
  13        LOCATION (SHELF NUMBER)       N3

Sort #       Fields                      File Name
------       ------                      ---------
  1          PART NUMBER                 INV1.SRT
  2          DESCRIPTION                 INV2.SRT
  3          PRIMARY VENDOR by PART
             NUMBER                      INV3.SRT
  4          LOCATION (SHELF NUMBER)
             by PART NUMBER              INV4.SRT

Press RETURN to display the function menu <CR>
```

Cromemco Data Base Management System
Display Structure

An example of a system layout for a personnel data base is shown below:

```
Specifications for Data Base -- A:MG.MST
        Data File -- MG.DAT

Field #    Description                 Type
-------    -----------                 ----
  1        NAME                         A40
  2        ADDRESS1                     A30
  3        ADDRESS2                     A30
  4        PHONE                        N12
  5        START DATE                   N6
  6        TITLE                        A25
  7        DEPT                         N3
  8        EMPLOYEE NO                  N4
  9        TERMINATE DATE               N6

Sort #      Fields                     File Name
------      ------                     ---------
  1         NAME                       MG1.SRT
  2         START DATE                 MG2.SRT
  3         DEPT by NAME               MG3.SRT
  4         TITLE by NAME              MG4.SRT

Press RETURN to display the function menu <CR>
```

Chapter 3

ENTERING DATA INTO A DATA BASE

Function 3 is used to enter new data into your data base. You will automatically be prompted, one field at a time, when entering data.

If you make a typing error while entering data, you may back up within a record to correct the error by typing **end** instead of entering data. This will cause the system to back up by one field and prompt you again. You may not back up to a previous record in this manner. Once you have finished entering your data, you can return to the function selection list by typing **end** following the prompt for the first field of a record.

Before entering data, give consideration to the format of the data. Names, if they are to be sorted alphabetically, should be entered last name, comma, first name. The terms **first, second, third,** etc. will be sorted in alphabetical order since they are alphabetic characters. But, **1, 2, 3,** etc. will be sorted in numerical order.

As you enter new data into the data base, this data is stored in your data file and the sort keys are automatically ordered and stored in your sort files. These files are updated after every new record of data is entered. As more and more data is entered, the system will become increasingly sluggish in prompting you for a new record since it takes increasingly longer to reorder the sort files. If you are entering much data into the system and the time delay between successive record entries becomes objectionable, there are two ways the delay can be greatly shortened. One way is to occasionally re-create the sort files using Function 4. When sort files are re-created in this manner, gaps are automatically inserted in the sort files to speed the rearrangement of these files after each new data entry (see Chapter 4 for details). The second way is to use Function 7 to delete your sort files. There is then no sort file management overhead while entering new data. After the data is entered, you can re-create your sort files by using Function 7 followed by Function 4.

Example - Entering Data

```
Function desired:  3

**********      blank screen       **********

The current master file is A:MAILIST.MST

Data entry is much faster if all sorts are deleted with
function 7


NAME                      A24   ?  Pendragon,Arthur       |
ADDRESS LINE 1            A24   ?  Box 24                  |
ADDRESS LINE 2            A1    ?  <CR>
CITY                      A20   ?  Frostbite Falls     |
STATE                     A2    ?  MN|
ZIP CODE                  N5    ?  32411|
COUNTRY                   A1    ?  <CR>

**********      blank screen       **********

NAME                      A24   ?  Foo,Barbara             |
ADDRESS LINE 1            A24   ?  end                     |
NAME                      A24   ?  Foo,Barbara             |
ADDRESS LINE 1            A24   ?  Box 17                  |
ADDRESS LINE 2            A1    ?  <CR>
CITY                      A20   ?  Frostbite Falls     |
STATE                     A2    ?  MN|
ZIP CODE                  N5    ?  32411|
COUNTRY                   A1    ?  <CR>

**********      blank screen       **********

NAME                      A24   ?  Johnson,Raymond         |
ADDRESS LINE 1            A24   ?  Box 27                  |
ADDRESS LINE 2            A1    ?  <CR>
CITY                      A20   ?  Frostbite Falls     |
STATE                     A2    ?  MN|
ZIP CODE                  N5    ?  32411|
COUNTRY                   A1    ?  <CR>

**********      blank screen       **********

NAME                      A24   ?  end                     |

**********      blank screen       **********

********** return to function menu **********
```

Chapter 4

CREATING SORT FILES

A powerful feature of the Cromemco DBMS software is that the multi-keyed sort files are automatically maintained as data is added. Function 4 should be used if:

1. New sorts are added to the master file using Function 7. Function 7 enters the name and structure of the sort file into the master file; it does not create the sort file. Function 4 creates the sort file with this information from the master file.

2. Significant record deletions have been made. When record deletions are made with Function 5, the records are deleted from the data file but not the sort files. By re-creating the sort files, the sort key entries for those deleted records will be deleted.

3. Key entries of records have been changed using Function 5. After this has been done, retrieved data via Function 6 will probably not be in the desired sorted order. This is because Function 5 changes only the data file and not the sort files. Sort files re-created with Function 4 have their keys taken directly from the data files which have been changed. Therefore, the retrieved information will be in the desired sorted order.

After selecting Function 4, the system will remind you of the current disk drive and master file:

```
The current master file is A:INVEN.MST
```

In this case the master file named INVEN.MST on drive A is the current master. If you wish to re-create the sort files for some different master, you must first run Function 8 to change the default master file.

After telling you the name of the current master file, the system will ask if you would like to see a list of appropriate responses for this section.

The next question that you will be asked is:

Sort file option?

In response to this question you may respond **end** if you wish to abort Function 4 and return to the function selection menu. The other two possible answers to this question are **c** to create or re-create sort files and **b** to block sort files.

When sort files are created, the sort keys are grouped in blocks with gaps between blocks. These gaps allow the sort files to be updated much more quickly when changes are made to the data base than if there were no gaps. The gaps do, however, require disk storage space.

If you respond to the **Sort file option?** question with a **c**, the sort files will automatically be created with groups of five records per block and a space of one record between blocks. If you want a different arrangement or if you want to change the disk drive that is used for scratch files during the course of sort file creation, then you should respond **b** to the question to continue.

If you respond **b**, you will be asked by the system how many records per block and how many spare records per block you desire. DBMS normally uses six records per block including one spare record. For fast system update time you will want to choose fewer records per block and more spare records per block. On the other hand if you want to conserve on disk memory storage requirements you will want to choose a large number of records per block with few or no spares. You will also be asked which disk drive to use for scratch files. If the current disk is full this lets you store these temporary files on some other diskette. Be sure that the diskette used is not write-protected and that it has enough space for the scratch files.

Whether you respond **c** or **b**, you will next be asked what sort files you wish to create:

Which sort?

Typing **list** will display a list of the available sort files. Respond **all** if you wish to update all the sort files. Respond with a sort number to update only one particular sort file.

Example - Creating & Blocking Sorts

```
Function desired: 4

**********      blank screen      **********

The current master file is A:MAILIST.MST

Would you like a list of appropriate responses? [n] <CR>

Which sort file option?  c

Which sort? list

**********      blank screen      **********

Sort #      Fields                       File Name
-------     ------                       ---------
  1         STATE by CITY by NAME        MAILIS1.SRT
  2         NAME                         MAILNAME.SRT
(sort 2 must be created with Function 7 first)

Press RETURN to continue <CR>

**********      blank screen      **********

Which sort? 2

Creating MAILNAME.SRT
Temp opened to 29
Sort file buffer loaded
Subfile #0  3 records long now sorted & written
Sort and merge complete

Press RETURN to continue <CR>

**********      blank screen      **********

********** return to function menu **********

Function desired: 4

**********      blank screen      **********

The current master file is A:MAILIST.MST

Would you like a list of appropriate responses? [n] <CR>

Which sort file option?  b
```

```
Cromemco Data Base Management System
Create Sort Files


How many records per block? [6] 8

How many spare records per block? [1] 2

Enter assigned drive for scratch file: b

Which sort? all

Re-creating file MAILIS1.SRT
Temp opened to 51
Sort buffer loaded
Subfile #0  3 records long now sorted & written

Re-creating file MAILNAME.SRT
Temp opened to 29
Sort file buffer loaded
Subfile #0  3 records long now sorted & written
Sort and merge complete

Press RETURN to continue <CR>

**********      blank screen       **********

********** return to function menu **********
```

Chapter 5

MODIFYING RECORDS

Records in a data file may be changed, deleted, or displayed with Function 5.

After selecting Function 5 you will be prompted:

```
Sort desired:
```

To display the sorts which are available, type **list.** You may respond with just the sort number if you wish to list the entire data base in a sorted order. However, if you are not interested in listing every record in the data base, you can follow the sort number by **delimiters.** Suppose, for example, that sort 2 is ordered by a six-digit data field (yymmdd). To list all records in chronological order you would respond:

```
Sort desired:  2
```

If you wanted to list all records with dates since January 1, 1978, you would respond:

```
Sort desired:  2,780101
```

And if you wanted to list all records dated between January 15, 1973 and November 25, 1978, you would type:

```
Sort desired:  2,730115*781125
```

Sorts may be specified either without delimiters, or with only a lower bound, or with both a lower bound and an upper bound.

Once you have selected the desired sort, the data base records will be displayed, one at a time, on your terminal. After each record is displayed, you will be prompted:

```
Data record option?
```

to which there are a number of different responses. If you wish to see the next record of data in sequence, simply press the RETURN key on your terminal. Alternately, you could type **yes** followed by a RETURN.

If instead of seeing the next record, you wish to see the previous record of the sort, type **b** followed by a RETURN. The **b** can be followed by the number of records you wish to back up. **b17,** for example, will back up 17 records. To go forward use the letter **f. f7,** for example, will go forward 7 records. You can also type **c** to change a record or **d** to delete a record from a data base. Type **m** to select a new master file. Type **s** if you want a different sort, and type **end** if you want to return to the function selection menu. These options are summarized below.

In response to the prompt **Data record option,** you can enter:

Carriage RETURN	Displays the next sequential record.
Bn	Backs up n records and displays the record.
Fn	Goes forward n records and displays the record.
C	Allows you to change the record.
D	Deletes the record currently being displayed.
S	Lets you select a different sort.
END	Terminates Function 5 and displays the function selection list.
M	Allows you to change master files.

In addition, a sort number followed by primary key delimiters as described on the previous page may be entered at the **Data record option** prompt.

Example - Modifying Records

```
Function desired: 5

**********      blank screen       **********

The current master file is A:MAILIST.MST

Would you like a list of appropriate responses? [n] <CR>

Sort desired: 2

**********      blank screen       **********

 1    NAME                  Foo,Barbara
 2    ADDRESS LINE 1        Box 17
 3    ADDRESS LINE 2
 4    CITY                  Frostbite Falls
 5    STATE                 MN
 6    ZIP CODE              32411
 7    COUNTRY

Data record option? <CR>

**********      blank screen       **********

 1    NAME                  Johnson,Raymond
 2    ADDRESS LINE 1        Box 27
 3    ADDRESS LINE 2
 4    CITY                  Frostbite Falls
 5    STATE                 MN
 6    ZIP CODE              32411
 7    COUNTRY

Data record option? <CR>

**********      blank screen       **********

 1    NAME                  Pendragon,Arthur
 2    ADDRESS LINE 1        Box 24
 3    ADDRESS LINE 2
 4    CITY                  Frostbite Falls
 5    STATE                 MN
 6    ZIP CODE              32411
 7    COUNTRY

Data record option? c
```

```
Cromemco Data Base Management System
Modify Records


Which field do you wish to change? 2
New data: box 45

Do you want to change another field? [n] <CR>

**********      blank screen       **********

 1    NAME                  Pendragon,Arthur
 2    ADDRESS LINE 1        Box 45
 3    ADDRESS LINE 2
 4    CITY                  Frostbite Falls
 5    STATE                 MN
 6    ZIP CODE              32411
 7    COUNTRY

Data record option? end

**********      blank screen       **********

********** return to function menu **********
```

Chapter 6

RETRIEVING SORTED DATA FROM A DATA BASE

Function 6 allows you to specify a sort and display records in a manner similar to that of Function 5, but with three important differences:

1. You can specify that only certain fields of the records be displayed, and
2. You can specify rejection criteria to exclude certain records from display.
3. Records will be displayed in a list, not individually.

Suppose that you wish to display only fields 1 and 3 of each record. Furthermore, you do not want to display records if the number in field 3 is greater than 600. This can be specified as shown below:

```
Sort desired:  1

Enter the numbers corresponding to the fields you
wish to see (Type 0 when no more fields desired).

Field ?  1
Field ?  3
Field ?  0

Should the field names be listed on the printout? [n] y

Do you wish to specify rejection criteria? [n] y

Records not desired on the printout may be described
by specifying the field to be checked as a basis for
rejection, a relational operator, and the value to be
used as a basis for rejection.  You may specify up to
five sets of rejection criteria.

Field number to test:  3

Relational operator ( <, >, =, <> , <=, >= ):  >

Comparison quantity:  600

More rejection criteria?  [n] <CR>
```

At this point the data specified will be displayed. Be sure to depress CNTRL-P on your keyboard if you want the output to go to the printer. Press PRINT in lieu of CNTRL-P if you have a Cromemco 3102 terminal. CNTRL-S, PAUSE on a 3102, can be used to stop the listing at any time.

Once all data is listed the following message will be displayed:

```
Out of data

Continue?
```

In response to the prompt type **yes** for another data base inquiry or **no** to return to the function selection list.

Example - Retrieving Data

```
Function desired:  6

**********      blank screen      **********

The current master file is A:MAILIST.MST

Would you like a list of appropriate responses? [n] <CR>

Sort desired: 2

Enter the numbers corresponding to the fields you
wish to see (Type 0 when no more fields desired).

Field?  1
Field?  2
Field?  4
Field?  5
Field?  6
Field?  0

Should the field names be listed on the printout? [n] y

Do you wish to specify rejection criteria? [n] y

Records not desired on the printout may be described by
specifying the field to be checked as a basis for
rejection, a relational operator, and the value to be
used as a basis for rejection.  You may specify up to
five sets of rejection criteria.
```

```
Cromemco Data Base Management System
Retrieve Data

Field number to test: 1

Relational operator (<, >, =, <>, <=, >=): >=

Comparison quantity: pendragon

More rejection criteria? [n] <CR>

Foo,Barbara

     NAME                Foo,Barbara
     ADDRESS LINE 1      Box 17
     CITY                Frostbite Falls
     STATE               MN
     ZIP CODE            32411

Johnson,Raymond

     NAME                Johnson,Raymond
     ADDRESS LINE 1      Box 27
     CITY                Frostbite Falls
     STATE               MN
     ZIP CODE            32411

*** Out of data ***

Continue? [y] n

**********      blank screen       **********

********** return to the function menu **********
```

Chapter 7

MODIFYING THE MASTER FILE

Function 7 is used to change the master file. Field descriptions may be changed, new sorts may be added up to a maximum of 20 sorts, existing sorts may be modified or deleted, and the data file may be assigned to a drive other than that of the master file if more space is needed for it. After Function 7 has been selected, the menu may be displayed as shown below:

```
The current master file is A:MAILIST.MST

Would you like a list of modifications? [n] y

You can make the following modifications:

   f        - change a field description
   a        - add a new sort
   c        - change an existing sort
   d        - delete an existing sort
   help     - display this menu
   drive    - change data file drive assignment

Which modification do you wish to make?
```

To return to the function menu, type **end** in response to this prompt.

When a sort has been added or changed with Function 7, it has been added or changed in the master file only. In order to make this addition or change useful, Function 4 will need to be run on this sort.

When a sort has been deleted, it has been deleted from the master file only. The sort file still exists on a disk, but will not be recognized by your data base.

If the data file drive or name has been changed, it has been changed in the master file only. It has not been changed on the disk. This can be accomplished by renaming the data file with the CDOS intrinsic REName in this manner

Return to the main function menu
Exit DBMS and return to CDOS

```
REN NEWFILE.DAT=OLDFILE.DAT
```

Example - Modifying the Master File

```
Function desired: 7

**********        blank screen        **********

The current master file is A:MAILIST.MST

Would you like a list of modifications? [n] <CR>

Which modification do you wish to make? f

**********        blank screen        **********

Would you like a list of the existing fields? [n] <CR>

Which field description do you wish to change? 2

Is 'ADDRESS LINE 1' the field that you wish to change? [n] y

Enter the new description: street address

The new description is: STREET ADDRESS

Is that correct? [y] <CR>

Do you want to change another description? [n] <CR>

Which modification do you wish to make? a

**********        blank screen        **********

Would you like a display of the existing sorts? [n] <CR>

Enter the sort parameters separated by commas: 1

Enter the sort file name: mailname

The sort parameters are: 1

The sort file name is: MAILNAME.SRT

Is this correct? [y] <CR>

Run FUNCTION 4 to create the sort file before using this new sort.

Do you want to add another sort? [n] <CR>

Which modification do you wish to make? c

**********        blank screen        **********

Would you like a display of the existing sorts? [n] <CR>
```

```
Cromemco Data Base Management System
Modify Master File

Which sort do you wish to change? 2

Is '1' 'MAILNAME.SRT' the sort that you want to change? [n] y

Enter the sort parameters: 4,1

Enter the sort file name: [MAILNAME.SRT] <CR>

The new sort file name is: MAILNAME.SRT

The new sort parameters are: 4,1

Is this correct? [y] <CR>

Run FUNCTION 4 to create the sort file before using this new sort.

Do you want to change another sort? [n] <CR>

Which modification do you wish to make? d

**********      blank screen      **********

Would you like a display of the existing sorts? [n] <CR>

Which sort do you want to delete? 2

Is 'MAILNAME.SRT' the sort to be deleted? [n] y

Sort 2 has been deleted.

More sorts to delete? [n] <CR>

Which modification do you wish to make? drive

**********      blank screen      **********

Current data file is: MAILIST.DAT

Do you want to change the data file name? [n] <CR>

Enter the new drive assignment: [.MST drive] b

**********      blank screen      **********

Which modification do you wish to make? end

**********      blank screen      **********

********** return to function menu **********
```

Chapter 8

SELECTING A DIFFERENT MASTER FILE

If at any time while you are using the Cromemco DBMS package you wish to switch from one master file to another, perhaps on a different disk, this can be accomplished by selecting Function 8.

Function 8 prompts you for the master file name you want and the disk drive. After answering these questions DBMS automatically returns to the function list.

Example - Selecting a Different Master File

```
Function desired: 8

**********      blank screen       **********

What is the name of the master file? mailist
In which drive is the master file? b

**********      blank screen       **********

********** return to function menu **********
```

Chapter 9

PRINTING MAILING LABELS

The printing of mailing labels from a customer list or membership list is one important use of a data base system. This special facility has been included in the Cromemco DBMS system. To use Function 9 for this purpose, the first seven fields of each record of the data base must contain the following information:

Field 1	NAME
Field 2	ADDRESS LINE 1
Field 3	ADDRESS LINE 2
Field 4	CITY
Field 5	STATE (TWO CHARACTERS)
Field 6	ZIP CODE
Field 7	COUNTRY

If there is a Cromemco 3355A printer in your system, the 3355A printer driver must be loaded prior to the running of DBMS for the printing to be done correctly. No modifications need to be made to the system if a Cromemco dot matrix printer is used.

Once Function 9 is selected, you will be prompted to provide information about the labels you wish to print in order to accommodate any of a variety of self-adhesive mailing label forms. The default values that appear in brackets correspond to 15/16" by 2 1/2" labels which are 3 across on a page. If you wish to type directly on envelopes, you have the option of pausing after each label is printed so that a new envelope can be inserted into the printer. Since there is a wide range of label sizes, some experimentation is necessary to arrive at the correct spacing.

If another set of identical mailing labels is desired, respond **yes** to the query **Another run? [n]**. After one row of labels is skipped, all spacing will remain the same including the number of lines skipped before the first label.

Example - Printing Mailing Labels

```
Function desired: 9

**********      blank screen       **********

The current master file is A:MAILIST

This program will enable you to print custom
mailing labels or envelopes provided you have a data base
with fields numbered as follows :

   1       Name
   2       Address line 1
   3       Address line 2
   4       City
   5       State (2 characters)
   6       Zip code
   7       Country

All fields must exist as shown.  If certain fields are not
needed they should be specified as type A1.  Provinces of
foreign countries should be appended to the city name.
Your data base may contain additional fields.

How many labels across? [3] 2

What should the maximum number of characters be on one
line of a label? [25] 24

How many spaces for the left margin? [0] 5

How many spaces between labels on the same line? [1] 10

How many lines from the top of one label to the next? [6] 10

How many lines should be skipped before the first label is
printed? [0] 10

Should the labels go to the printer or the system
console (P or S)? [p] <CR>

*** TURN ON PRINTER ***

Which sort number? 1

Should name fields with commas in them be swapped
(e.g.  Jones,Bill becomes Bill Jones)? [y] <CR>

Would you like a pause after each label
(press RETURN after pauses)? [n] <CR>

Press RETURN when ready <CR>
```

```
Cromemco Data Base Management System
Print Mailing Labels


Barbara Foo                       Raymond Johnson
Box 17                            Box 27
Frostbite Falls,MN                Frostbite Falls,MN
      32411                             32411






Arthur Pendragon
Box 45
Frostbite Falls,MN
      32411






Another run? [n] <CR>

**********      blank screen       **********

********** return to function menu **********
```

Chapter 10

BACKING UP DATA BASES

When you are using a computerized data base management system to maintain data bases that are important to you, it is essential that you keep back up copies of the data base. These back up copies should be maintained both on diskettes **and** on printed (hard-copy) listings. To make a backup diskette you can type END after the function selection menu is displayed in order to return to CDOS. From CDOS you can use the XFER command to copy your data base files to a backup diskette. For example,

1. If the master file(s) and sort files are on drive B, insert a blank diskette into drive A.
2. Type
   ```
   XFER/V A:=B:*.MST
   XFER/V A:=B:*.SRT
   ```
3. If the data file is too large to fit on the same diskette as the master and sort files, insert another blank diskette in drive A. Please note that the diskette that you are copying your data file to must have enough storage capacity to accept the entire file.
4. Type
   ```
   XFER/V A:=B:*.DAT
   ```

Appendix 1

STRUCTURE OF DBMS FILES

The master file contains the structure of the data base. The first record (record 0) contains the number of data fields, number of sorts, and the data record length. Each of these descriptors is five bytes long. In the next group of records each contains a field name and its data type. After the field description records, are the records which contain field numbers separated by commas for the sorts specified. The next record contains the data file name. In the last group of records each contains a sort file name. Each of these master file records is thirty-two bytes long.

The data file contains all of the data that you have entered into your data base. The first record (record 0) contains the number of the next available record in the data file and the record length. The following records contain the data with the fields in the order in which they were entered. Records which contain **ZZZ** are deleted records. The number which accompanies the **ZZZ** is the number of the next available record.

The sort files contain all the information necessary to retrieve data from the data file in a sorted order. The first record contains the number of records to be sorted and the key record length. Note that sort files not created when the data base was created will not contain the key record length. If a sort file has been re-created with Function 4 it will not contain the key record length. The following records each contain a sort key and a five byte record pointer. Records which contain **ZZZ** are spare records. See the section on **blocking** sort files in Chapter 4.

Appendix 2

DBMS STATEMENTS, PROMPTS, & RESPONSES

This section contains the **listable** portion of the SAVEd DBMS files. It is provided so that the English language portion of the DBMS may be translated to other languages. Only the characters between the quotation marks should be changed. If there is a leading or trailing space between the quotation marks, leave it there.

Do not change any of the line numbers.

Do not change anything outside of the quotation marks.

Responses to questions from DBMS are contained in strings labeled **Response$.** Response$ must contain only upper-case characters. If there is more than one word in the Response$ string, replacement words must be the same respective length. For instance,

```
Response$="YES,END" :  Return
```

translated into French would become

```
Response$="OUI,FIN" :  Return
```

Only the characters between the quotation marks have been changed and the translated words are the same length as the original English words. If the translated words are longer the English words, they must be truncated to the same length as the English. If they are shorter, trailing spaces must be added.

Line numbers 6000 to 6299 are Print statements.
Line numbers 6300 to 6599 are portions of error messages
Line numbers 6600 to 6899 correspond to Input statements.
Line numbers 6900 to 6999 are Data statements

If a line number does not end with **0**, then it belongs with the previous statement that does end with **0**.

Listable portion of program DBMS

```
6000    @"Function","Operation" : Return
6020    @"Display the directory of a disk" : Return
6030    @"Exit DBMS to operating system" : Return
6300    @"There is no function "; : Return
6320    @"Filename can contain up to 8 characters"; : Return
6330    @"There is no disk drive "; : Return
6350    @"Error "; : Return
6360    @"Couldn't find "; : Return
6600    @"Function desired: "; : Return
6602    Response$="END,DIR" : Return
6620    @"Which drive (A - H)? [current] "; : Return
6630    @"Press RETURN to continue "; : Return
6640    @"What is the name of the master file? "; : Return
6650    @"In which drive is the master file? "; : Return
6660    @"On which drive is "; : Return
6665    @"directory"; : Return
6800    Data"Define a new data base"
6810    Data"Display the data base structure"
6820    Data"Enter information into the data file"
6830    Data"Create and block sort files"
6840    Data"Display, change, and delete records"
6850    Data"Retrieve information from the data base"
6860    Data"Modify the master file"
6870    Data"Select a different master file"
6880    Data"Print mailing labels"
6900    Data"Define a new data base"
6910    Data"Display the data base structure"
6920    Data"Enter information into the data file"
6930    Data"Create and block sort files"
6940    Data"Display, change, and delete records"
6950    Data"Retrieve information from the data base"
6960    Data"Modify the master file"
6970    Data"Select a different master file"
6980    Data"Print mailing labels"
```

Listable portion of program CREATE.SAV

```
6000    @"Define the fields that will be in the data file.
          They should consist of the"
6010    @"field name, followed by a comma, a type (A or N),
          and the field length." : Return
6020    @"Field #"; : Return
6030    @"Record length is "; : Return
6040    @"To create sorts, enter field numbers in descending
          order of sorting"
6050    @"significance.  Separate the field numbers by
          commas." : Return
6060    @"Sort #"; : Return
6070    @"Enter the name of sort file "; : Return
6080    @"Specifications complete" : Return
6090    @"Sort length is "; : Return
6300    @"There is no disk "; : Return
6310    @"Master file name is "; : Return
6315    @" characters too long"; : Return
6320    @"Type 'end' to stop entering fields"; : Return
6330    @"Invalid edit command"; : Return
6340    @"Type 'end' to stop entering sorts"; : Return
6350    @"You are limited to 32 characters, including
          commas"; : Return
6360    @"Data file name is limited to 8 characters";
          : Return
6370    @"Sort file name is "; : Return
6375    @" characters too long"; : Return
6380    @"You must specify 'field name', 'type', and
          'length'"; : Return
6390    @"Field names must be 26 characters or less";
          : Return
6400    @"Invalid width specification"; : Return
6410    @"Type must be 'a'(alpha) or 'n'(numeric)";
          : Return
6415    Response$="A,N" : Return
6420    @"Length must be an integer between 1 and 9999";
          : Return
6430    @"You have not defined field #"; : Return
6432    @". You only have "; : Return
6434    @" fields"; : Return
6440    @"Error "; : Return
6450    @"File - "; : Return
6455    @" already exists"; : Return
6600    @"Disk drive on which to create the master file: ";
          : Return
6602    Response$="END" : Return
6610    @"Enter the new master file name: "; : Return
6620    @"Enter the data file name: "; : Return
```

Listable portion of program LOOK.SAV

```
6000    @"System Specifications for Data Base -- ";
          : Return
6010    @"Data File"; : Return
6020    @"Field #"; : Return
6023    @"Description"; : Return
6026    @"Type" : Return
6030    @"Sort #"; : Return
6033    @"Fields"; : Return
6036    @"File Name" : Return
6040    @" by "; : Return
6300    @"There are no sorts currently active"; : Return
6310    @"Error "; : Return
6600    @"Press RETURN to continue "; : Return
6610    @"Press RETURN to display the function menu ";
          : Return
```

Listable portion of program ENTER.SAV

```
6000    @"The current master file is "; : Return
6010    @"Data entry is much faster if all sorts are deleted
          with Function 7" : Return
6300    @"8 characters maximum for a filename"; : Return
6310    @"There is no disk drive "; : Return
6320    @"The master file "; : Return
6325    @" can't be found"; : Return
6330    @"Error encountered reading master file"; : Return
6340    @"Can't find file "; : Return
6350    @"Invalid sort number"; : Return
6360    @"Error "; : Return
6363    @"; sort file - "; : Return
6366    @" not there"; : Return
6370    @"Error "; : Return
6380    @"Invalid record pointer in sort "; : Return
6385    @" rec -"; : Return
6390    @"Record already deleted"; : Return
6410    @"File write error - disk full?"; : Return
6430    @"Can't find 'a:dbms'"; : Return
6440    @" characters too wide"; : Return
6450    @ : @"STOP!  Do not enter more information into
              your data base."
6460    @"Record zero of the data file has been
          overwritten." : Return
6600    @"Which master file would you like? "; : Return
6610    @"In which disk drive is the master file? "; : Return
6620    Response$="MASTER,DISPLAY,STOP,END" : Return
```

Listable portion of program SORT.SAV

```
6000    @"The current master file is "; : Return
6010    @"Type 'list' to see available sorts" : Return
6020    @"Creating "; : Return
6030    @"Temp opened to "; : Return
6040    @"Sort buffer loaded" : Return
6050    @"Subfile #"; : Return
6055    @" records long now sorted & written" : Return
6060    @"Fill merge buffer" : Return
6070    @"Reloading "; : Return
6073    @" records from subfile #"; : Return
6076    @" to merge buffer" : Return
6080    @"Re-creating "; : Return
6090    @"Sort file-"; : Return
6095    @" exists, OK to erase "; : Return
6097    Response$="Y" : Return
6100    @"Sort and merge complete" : Return
6110    @"Appropriate sort file option responses are:"
          : Return
6120    @"b   - block sort file to change data density"
          : Return
6130    @"c   - create or re-create sort files" : Return
6140    @"end - return to the function menu" : Return
6150    @"Appropriate responses to 'Which sort?' are:"
          : Return
6160    @"the number corresponding to the sort file" : Return
6170    @"list - to list all available sort files" : Return
6180    @"all  - to block, create, or re-create all sort
          files" : Return
6190    @"end  - return to the sort file option query" : Return
6300    @"Run function 8 first"; : Return
6310    @"Too few records per block were specified"; : Return
6320    @"There are no sorts specified - run function 7";
          : Return
6330    @"Can't find data file - "; : Return
6340    @"There is no sort "; : Return
6360    @"Data record can't be found"; : Return
6370    @"Error "; : Return
6400    @"Scratch file exceeds disk capacity.  Repeat with
          a blank disk"; : Return
6600    @"Would you like a list of appropriate responses?
          [n] "; : Return
6605    Response$="YES" : Return
6610    @"Which sort file option? "; : Return
6615    Response$="END,BLOCK" : Return
6620    @"How many records per block? "; : Return
6630    @"How many spare records per block? "; : Return
6640    @"Enter assigned drive for scratch file: "; : Return
6650    @"Which sort? "; : Return
6655    Response$="LIST,END,ALL" : Return
6660    @"Press RETURN to continue "; : Return
```

Listable portion of program CHANGE.SAV

```
6000    @"The current master file is "; : Return
6010    @"No sorts specified" : Return
6020    @"At beginning" : Return
6030    @"End of sort" : Return
6040    @"Appropriate responses to 'Sort desired:' are:"
          : Return
6050    @"number of the desired sort" : Return
6060    @"enter   - to enter data records" : Return
6070    @"list    - list sorts and descriptions" : Return
6080    @"m       - select a different master file" : Return
6090    @"help    - will display this menu" : Return
6100    @"end     - return to the main function menu" : Return
6110    @"Appropriate responses to 'Data record option:' are:"
          : Return
6120    @"RETURN  - displays next record" : Return
6130    @"fn      - displays nth subsequent record; n=1 if
          none entered" : Return
6140    @"bn      - displays nth previous record; n=1 if none
          entered" : Return
6150    @"c       - change the record" : Return
6160    @"d       - delete the record" : Return
6170    @"s       - select a different sort" : Return
6180    @"m       - select a different master file" : Return
6190    @"help    - will display this menu" : Return
6200    @"end     - return to the main function menu" : Return
6300    @"8 characters maximum for filename"; : Return
6310    @"There is no disk drive "; : Return
6320    @"Can't find master file "; : Return
6330    @"Error encountered reading master file"; : Return
6340    @"Can't find file "; : Return
6350    @"Invalid sort number"; : Return
6360    @"Error "; : Return
6363    @"; sort file - "; : Return
6366    @" not there"; : Return
6380    @"Invalid record pointer in sort "; : Return
6385    @"; rec - "; : Return
6390    @"Record already exists"; : Return
6410    @"File write error - disk full?"; : Return
6430    @"Can't find 'a:dbms'"; : Return
6440    @"Not a valid option"; : Return
6450    @"There is no field "; : Return
6460    @" too big"; : Return
6470    @"Error in the record delete mode"; : Return
6480    @"Before entering more information into your data
          base, re-create"
6490    @"all sort files with Function 4.  Press RETURN to
          continue "; : Return
6600    @"Which master file would you like? "; : Return
6605    Response$="END" : Return
6610    @"In which disk drive is the master file? "; : Return
6620    @"Would you like a list of appropriate responses?
          [n] "; : Return
```

```
6625   Response$="YES" : Return
6630   @"Sort desired: "; : Return
6635   Response$="ENTER,E,L,M,H" : Return
6640   @"Data record option: "; : Return
6645   Response$="ENTER,M,E,S,B,F,C,D,H" : Return
6650   @"Which field do you wish to change? "; : Return
6660   @"New data: "; : Return
6670   @"Do you want to change another field? [n] ";
         : Return
6680   @"Is it OK to delete the record? [n] "; : Return
```

Listable portion of program TESTR.SAV

```
6000    @"The current master file is "; : Return
6010    @"Enter the numbers corresponding to the fields you
          wish to see"
6020    @"(Type 0 when no more fields are desired)." : Return
6030    @"Records not desired on the printout may be described
          by specifying"
6040    @"the field to be checked as a basis for rejection,
          a relational operator,"
6050    @"and the value to be used as a basis for rejection.
          You may specify up to"
6060    @"five sets of rejection criteria." : Return
6070    @"All 6 criteria specified" : Return
6080    @"Appropriate responses to 'Sort desired:' and 'Field:'
          are:" : Return
6090    @"number of the desired sort" : Return
6100    @"l        - list available sorts" : Return
6110    @"help     - display this list" : Return
6115    @"end      - return to the menu" : Return
6120    @"Appropriate responses to 'Field number to test'
          are:" : Return
6130    @"number of the desired field" : Return
6140    @"help     - display this list" : Return
6150    @"end      - return to the menu" : Return
6300    @"8 characters maximum for a filename"; : Return
6310    @"There is no disk drive "; : Return
6320    @"The master file "; : Return
6325    @" can't be found"; : Return
6330    @"Error encountered reading master file"; : Return
6340    @"Can't find file "; : Return
6350    @"Invalid sort number"; : Return
6360    @"Error "; : Return
6363    @"; sort file - "; : Return
6366    @" not there;:return"
6370    @"Invalid record pointer in sort "; : Return
6375    @"; rec - "; : Return
6380    @"Record already deleted"; : Return
6395    @" in Zdelete routine"; : Return
6400    @"File write error - disk full?"; : Return
6420    @"Can't find 'a:dbms'"; : Return
6430    @" is not a sort in this master file"; : Return
6440    @"Type '0' to stop entering fields"; : Return
6450    @" is not a field in this master file"; : Return
6460    @" is not a valid field number"; : Return
6470    @"Invalid relational operation"; : Return
6480    @"There are no sorts specified"; : Return
6490    @"Out of data"; : Return
6510    @"Can't run 'a:dbms'"; : Return
6600    @"Which master file would you like? "; : Return
6605    Response$="END" : Return
6610    @"In which drive is the master file? "; : Return
6620    @"Would you like a list of appropriate responses?
          [n] "; : Return
```

```
6625   Response$="YES" : Return
6630   @"Sort desired: "; : Return
6635   Response$="L,E,H" : Return
6640   @"Field:  "; : Return
6650   @"Should the field names be listed on the printout?
         [n] "; : Return
6660   @"Do you wish to specify rejection criteria? [n] ";
         : Return
6670   @"Field number to test: "; : Return
6675   Response$="E,H" : Return
6680   @"Relational operator (<, >, =, <>, <=, >=): ";
         : Return
6690   @"Comparison quantity: "; : Return
6700   @"More rejection criteria? [n] "; : Return
6710   @"Continue? [y] "; : Return
6715   Response$="NO" : Return
```

Listable portion of program MODIFY.SAV

```
6000    @"The current master file is "; : Return
6010    @"The new description is: "; : Return
6020    @"The new sort file name is: "; : Return
6030    @"The new sort parameters are: "; : Return
6040    @"Sort "; : Return
6045    @" has been deleted." : Return
6050    @"The sort parameters are: "; : Return
6060    @"The sort file name is: "; : Return
6070    @"Current data file is: "; : Return
6080    @"You can make the following modifications:" : Return
6090    @"f       - change a field description" : Return
6100    @"a       - add a new sort" : Return
6110    @"c       - change a sort" : Return
6120    @"d       - delete a sort" : Return
6130    @"help    - display this menu" : Return
6140    @"drive   - change the data file drive assignment"
          : Return
6150    @"The DAT filename will be changed in the MST file
          only."
6153    @"You must exit DBMS and rename the file using CDOS."
6156    @"See the DBMS manual for further instructions."
          : Return
6300    @"There is no function "; : Return
6310    @"There is no field "; : Return
6320    @"The new description is "; : Return
6325    @" characters too long"; : Return
6330    @"You do not have a sort "; : Return
6335    @" in this master file"; : Return
6340    @"File name is "; : Return
6345    @" characters too long"; : Return
6350    @" is not an existing sort"; : Return
6360    @"No more than 20 sorts are allowed"; : Return
6370    @"File name is "; : Return
6375    @" characters too long"; : Return
6380    @"Invalid drive assignment - "; : Return
6390    @"Parameters must be valid field numbers"; : Return
6400    @"There is no field "; : Return
6410    @"Error "; : Return
6600    @"Would you like a list of modifications? [n] ";
          : Return
6605    Response$="YES" : Return
6610    @"Which modification do you wish to make? "; : Return
6615    Response$="END,F,A,C,DRIVE,D,H" : Return
6620    @"Would you like a display of the existing fields?
          [n] "; : Return
6630    @"Which field description do you wish to change? ";
          : Return
6635    Response$="END" : Return
6640    @"Is '"; : Return
6643    @"' the field "; : Return
6646    @"that you wish to change? [n] "; : Return
6648    Response$="YES,END" : Return
```

```
6650    @"Enter the new description: "; : Return
6660    @"Is that correct? [y] "; : Return
6670    @"Do you want to change another description? [n] ";
          : Return
6680    @"Which sort do you wish to change? "; : Return
6690    @"Is '"; : Return
6693    @"' the sort "; : Return
6696    @"that you want to change? [n] "; : Return
6700    @"Enter the sort parameters separated by commas: ";
          : Return
6710    @"Enter the sort file name: "; : Return
6730    @"Do you want to change another sort? [n] "; : Return
6740    @"Which sort do you want to delete? "; : Return
6750    @"Is '"; : Return
6753    @"' the "; : Return
6756    @"sort to be deleted? [n] "; : Return
6760    @"More sorts to delete? [n] "; : Return
6770    @"Enter the sort parameters separated by commas: ";
          : Return
6780    @"Enter the sort file name: "; : Return
6800    @"Do you want to add another sort? [n] "; : Return
6810    @"Do you want to change the data file name? [n] ";
          : Return
6820    @"New data file name: "; : Return
6830    @"Enter the new drive assignment [.MST drive]: ";
          : Return
6840    @"Would you like a display of the existing sorts?
          [n] "; : Return
```

Listable portion of program MAIL.REP

```
6000    @"The current master file is "; : Return
6010    @"This program will enable you to print custom mailing
          labels or envelopes"
6020    @"provided you have a data base with fields numbered
          as follows:" : Return
6030    @"1       Name" : Return
6040    @"2       Address line 1" : Return
6050    @"3       Address line 2" : Return
6060    @"4       City" : Return
6070    @"5       State (2 characters)" : Return
6080    @"6       Zip code" : Return
6090    @"7       Country" : Return
6100    @"All fields must exist as shown.  If certain fields
          are not needed they" : Return
6110    @"should be specified as type A1.  Provinces of foreign
          countries should be" : Return
6120    @"appended to the city name.  Your data base may
          contain additional fields." : Return
6300    @"8 characters maximum for a filename"; : Return
6310    @"There is no disk drive "; : Return
6320    @"The master file "; : Return
6325    @" can't be found"; : Return
6330    @"Error encountered reading master file"; : Return
6340    @"Can't find file "; : Return
6350    @"Invalid sort number"; : Return
6360    @"Error "; : Return
6363    @"; sort file - "; : Return
6366    @" not there"; : Return
6380    @"Invalid record pointer in sort "; : Return
6385    @"; rec - "; : Return
6390    @"Record already deleted"; : Return
6405    @" in Zdelete routine"; : Return
6410    @"File write error - disk full?"; : Return
6430    @"Can't find 'a:dbms'"; : Return
6450    @" is invalid"; : Return
6490    @"4 lines minimum"; : Return
6510    @"Turn on printer"; : Return
6520    @"Enter 's' or 'p'"; : Return
6530    @" is an invalid sort specifier"; : Return
6600    @"Which master file would you like? "; : Return
6605    Response$="END" : Return
6610    @"In which disk drive is the master file? ";
          : Return
6620    @"How many labels across? "; : Return
6630    @"What should the maximum number of characters be on
          one line of a label? "; : Return
6640    @"How many spaces for the left margin? "; : Return
6650    @"How many spaces between labels on the same line? ";
          : Return
6660    @"How many lines from the top of one label to the
          next? "; : Return
6670    @"How many lines should be skipped before the first
```

```
          label is printed? "; : Return
6680    @"Should the labels go to the printer or the system
          console (p or s)? "; : Return
6685    Response$="PRINTER" : Return
6690    @"Which sort number? "; : Return
6700    @"Should name fields with commas in them be swapped"
6705    @"(e.g. Jones,Bill becomes Bill Jones)? [y] ";
          : Return
6707    Response$="YES" : Return
6710    @"Would you like a pause after each label (press
          RETURN after pauses)? [n] "; : Return
6720    @"Press RETURN when ready "; : Return
6730    @"Another run? [n] "; : Return
```

Data Base Definition Worksheets

Master file name ____________ Data file name ____________

	Field	Type A or N	Width
1.	,		
2.	,		
3.	,		
4.	,		
5.	,		
6.	,		
7.	,		
8.	,		
9.	,		
10.	,		
11.	,		
12.	,		
13.	,		
14.	,		
15.	,		
16.	,		
17.	,		
18.	,		
19.	,		
20.	,		

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Data Base Definition Worksheets

Master file name ________________ Data file name ________________

Sort Number	Fields	Sort File Name
1.	____, ____, ____, ____	______________.SRT
2.	____, ____, ____, ____	______________.SRT
3.	____, ____, ____, ____	______________.SRT
4.	____, ____, ____, ____	______________.SRT
5.	____, ____, ____, ____	______________.SRT
6.	____, ____, ____, ____	______________.SRT
7.	____, ____, ____, ____	______________.SRT
8.	____, ____, ____, ____	______________.SRT
9.	____, ____, ____, ____	______________.SRT
10.	____, ____, ____, ____	______________.SRT

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